



NOTES ON SELECTED SPECIES OF DENDROBIUM SECT. LATOURIA

by

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ABSTRACT:

Composite computer scans generated from pressed material of eight species of *Dendrobium* sect. *Latouria* from New Guinea, viz *Dendrobium alexandrae* Schltr., *D. amphigenyum* Ridl., *D. convolutum* Rolfe, *D. dendrocolloides* J.J. Smith, *D. engae* T.M. Reeve, *D. geotropum* T.M. Reeve, *D. uncipes* J.J. Smith and *D. spectabile* (Blume) Miq. are provided together with detailed descriptions and notes on their ecology and cultivation.

Dendrobium Sw. sect. *Latouria* (Blume) Miq. contains about fifty species (Cribb 1983). Schlechter (1911-14, 1928) described and illustrated a number of species from German New Guinea and repeatedly noted their potential as horticultural subjects. Many species are popular in cultivation but orchid growers find difficulty in identifying all but the most common species. A simple reference publication to help horticulturalists and hybridisers to identify species would be useful. This publication is the first of a series of papers aimed at filling that gap and will be followed by a book on the subject.

Since 1965 the author has maintained about 30 species of *Dendrobium* sect. *Latouria* in cultivation in Sydney, Australia. During this period the differences and similarities between these species have been observed when grown under relatively uniform cultural conditions. Most of these species have also been propagated from seed. Hybrids have been made between species, within the section and with species from other sections of *Dendrobium*, with the aim of producing plants with potential as cut flowers and for the pot plant trade, as well as for the exhibition tables at orchid societies functions. The horticultural potential of this group of orchids is only just being realised.

In preparation for a forthcoming publication on *Dendrobium* sect. *Latouria*, aimed at making it easier to identify the various species, data is being gathered on all species available to the author. The purpose of this paper is to outline this work and the format which will be used in this publication with eight species as examples, viz *Dendrobium alexandrae* Schltr., *D. amphigenyum* Ridl., *D. convolutum* Rolfe, *D. dendrocolloides*

J.J. Smith, *D. engae* T.M. Reeve, *D. geotropum* T.M. Reeve, *D. uncipes* J.J. Smith and *D. spectabile* (Blume) Miq.

METHODS AND MATERIALS

The images were created by use of the following technique. A fresh flower was removed and dissected using a fine point scalpel to cut around the column, removing the sepals, petals and labellum, and the column and ovary cut in half lengthwise. A second flower was prepared by removing the labellum and the ovary but, leaving the column intact. A median longitudinal section was made through a third flower. All floral segments were then placed in a small press between sheets of ridged absorbent white card and gradually flattened. Once flattened the specimens were removed and glued in position on 15 x 10 cm cards, of 2 ply Rising Museum Mounting board (RM020 Warm White, 100% cotton, acid free formulation, buffered with calcium carbonate).

The completed cards were placed onto a flat bed scanner (Relisys™) image scanner model Avec Colour 2400) and scanned into an IBM® compatible through Microsoft® Windows™ and Adobe Photoshop™ software. Photographs were scanned in using the same method. Line drawings showing plant habit were scanned into Adobe Photoshop™ using Grey scale settings which is converted to R.B.G settings once a file is generated. Images of floral segments are transferred to this file by cutting, pasting and then arranged around the drawing. The text added through the Adobe program. A few small adjustments were made (such as removing any stray marks and sharpening of the



edges) and the final image printed on a colour printer (Hewlett Packard Deskjet 600™).

Species descriptions are either translations from Latin or an English text of the species prepared by Schlechter (1911-14), Smith (1909, 1912, 1913), Betts (1979), Reeve (1979a, b, 1983), Cribb (1983) and modified from observations made on cultivated plants.

SPECIES

1. *Dendrobium alexandrae* Schltr., *Repert. Spec. Nov. Regni Veg. Beih.* 1: 493 (1912); *Latourorchis alexandrae* (Schltr.) Brieger in Schltr., *Die Orchideen* (ed. 3) 1(11-12): 727 (1981); *Sayeria alexandrae* (Schltr.) Rauschert, *Feddes Rep.* 94(7-8): 466 (1983). Type: Kaiser-Wilhelms-Land [Papua New Guinea]: on trees in the mountain forests near Gobi in the Waria Valley, alt. c. 900-1100 m, June 1909, R. Schlechter 19857 (holo B†). See Fig. 1. Plates 3C, D.

Erect, robust, epiphyte, 50-70 cm high. **Rhizome** very short. **Roots** thread-like, elongated, glabrous. **Pseudobulbs** stem-like from an attenuated base, gradually increasing from 0.4 to 1.5 cm diam. towards the apex, furrowed. **Leaves** 3-4, spreading at 45°, elliptic-acuminate, cuneate at the base, 11-16 cm long, 3.5-5.5 cm wide, glabrous, coriaceous. Inflorescence solitary towards the apex of the pseudobulbs, to 25 cm long, almost erect, loosely 3-7 flowered; peduncle almost equal in length to the leaves; bracts spreading at about 45°, lanceolate, acute. **Flowers** spreading at c. 45°, showy, among the largest in the genus. **Ovary** cylindrical, lightly 6-ribbed; pedicel glabrous, c. 1.8 cm long. **Sepals** lanceolate, long-acuminate, about 5 cm long, the laterals oblique, falcate, forming with the enlarged base of the anterior margin, together with the column foot an obtuse, broadly conical mentum about 1.3 cm. **Petals** spreading obliquely, lanceolate, conspicuously undulate, similar in length to the sepals. **Labellum** cuneate, as long as the petals, about 3 cm wide between the tips of the lateral lobes when flattened; lateral lobes erect and clasping the column, the outer margin square, somewhat crenulate, c. 1.2 cm wide; mid-lobe ovate, acuminate, c. 3.7 cm long, c. 2 cm wide, with an erect, cuneate 3-ridged callus. **Column** short, moderately thick, with 3-lobed clinandrium, with very small falcate, obtuse lateral lobules, the slightly

curved dorsal lobe somewhat larger; foot embellished at the tip with a triangular hollow. **Anther** 4-hooded, truncate in front, glabrous.

DISTRIBUTION: Papua New Guinea. Central Province: Rego District; West Sepik Province: Wawa; Morobe Province: Gobi, in the Waria Valley.

HABITAT: Epiphytic in montane forests at c. 900-1100 metres.

NOTES: *Dendrobium alexandrae* was named by Schlechter in honour of his wife Alexandra, nee Sobennikoff (Schlechter 1911-14) who helped him compile his work "Die Orchidaceen von Deutsch-Neu-Guinea". For more than 70 years *D. alexandrae* was lost and was even thought by some authors such as Cribb (1983) to be a natural hybrid.

Dendrobium alexandrae was first brought to the author's attention in 1979 by M. Simmons who lived in Port Moresby Papua New Guinea. He had received a plant from Frank Genarti, former Assistant Director of the National Capital Botanical Gardens (NCBG), collected along Border Road and brought into Wawa in the West Sepik Province sometime during 1978. In February 1995 Justin Tkatchenko, Curator of the NCBG, acquired 30 plants of this species from a villager who collected them in the Rego district, Central Province. It was later confirmed that this species is common at this locality.

This species is similar to *D. spectabile* but has larger, more attractive flowers with wider segments. The sepals and petals are yellowish with red spots and the labellum marked with purple spots and stripes.

CULTIVATION: I grow this species in a shallow well-drained plastic pot in a potting medium of pine bark, well soaked to leach out all the resins and tannins. The plants are established by first keeping the roots moist by packing sphagnum moss around the surface of the potting medium. Once established, this moss is removed reducing the watering till the bark is only just moist. I find this species does best in the heated glasshouse, hanging where there is a lot of air movement. Once established, *D. alexandrae* will quickly grow into a specimen plant. Back-cutting old pseudobulbs from the plant helps to accelerate new growth and development into a large plant. Inflorescences are produced from the apex and also from nodes under the leaves. Flowering is in early autumn.

2. *Dendrobium amphigenyum* Ridl., *Trans. Linn. Soc. Bot.* 9: 176 (1916); *Sayeria amphigenia* (Ridl.) Rauschert, *Feddes Rep.* 94 (7-8): 446 (1983). Type: Dutch New Guinea [Irian Jaya], Camp V1a, 3100 ft., Boden Kloss s.n. (holo BM). **See Fig. 2.**

Erect epiphytic, lithophytic or terrestrial herb. **Pseudobulbs** cylindrical or slightly dilated above, 3-8-noded below leaves, 12-4 x 1.2-0.8 cm, orange-yellow when dry. **Leaves** 2-3, coriaceous, suberect, lanceolate, acuminate, 9.3-12 x 3.4-2.5 cm. **Inflorescences** terminal, subterminal or from uppermost nodes, suberect 6-8 cm long, 2-9 flowered; bracts falcate, lanceolate, acute, 0.5-0.6 cm long. **Flowers** small, fleshy, the sepals and petals creamy to green, mottled with purple, the labellum purplish; pedicel and ovary 1.7-2.2 cm. **Dorsal sepal** elliptic, obtuse, 1.0-1.2 x 0.5-0.65 cm; **Lateral sepals** very obliquely elliptic, obtuse, 0.9 x 0.9 cm, the mentum subsaccate, 0.5-0.7 cm long. **Petals** falcate, oblanceolate, obtuse, 0.6 x 0.2 cm, wide, margins, erose. **Labellum** strongly recurved at the base, 1.2-0.7 x 1-0.7 cm; lateral-lobes erect, oblong-elliptic, rounded at apex, margins erose; mid-lobe smaller than lateral-lobes, deeply emarginate with a mucro in the sinus, each lobule acute or subacute; callus fleshy, 3-ridged with a lower rugulose apex; **Column** 0.2 cm long; foot incurved, 0.5-0.7 cm long.

DISTRIBUTION: Papua New Guinea. Chimbu Province; Southern Highlands Province: Mt Ambua, Tari, and Kotuni; Eastern Highlands Province: Goroka.

HABITAT: Epiphytic and terrestrial in moss forests; terrestrial on clay road batters. Grows on the upper side of branches within the middle canopy. Altitude. 1600-2300 metres.

NOTES: *Dendrobium amphigenyum* belongs to a group of species (including *D. dendrocolloides* J.J. Smith and *D. uncipes* J.J. Smith) where the flower spikes take several months to develop and the buds are figure of eight-shaped when viewed from the side. Plants of this species can be confused with *D. dendrocolloides* J.J. Smith but when in flower are distinguished by having a labellum in which the mid-lobe is not quite as long as the lateral-lobes. The flowers are a light green to brown green with a rose hue on the back. The labellum can be purplish, light yellow to a light green and some times almost white. The

flowers last for at least two months.

CULTIVATION: Plants thrive in an open bush house with a temperature range of 2°-35°C throughout the year. They are potted in pine bark which has a light moss covering on the bark, pots are hung rather than sitting on a bench and watered daily, early in the morning. Capsules should not be harvested for at least six months after pollination.

3. *Dendrobium convolutum* Rolfe, *Kew Bull.* 1906: 375 (1906); *Sayeria convoluta* (Rolfe) Rauschert, *Feddes Rep.* 94(7-8): 466 (1983). Type: cultivated, Sander & Sons s.n. ex New Guinea. (holo K). **See Fig. 3.**

Plate 2A.

Erect tufted epiphyte. **Pseudobulbs** crowded, to 30 cm long, somewhat fusiform, furrowed, 1.3 cm diam. near the middle and 0.4 cm diam. at the fourth sheathing bract from the rhizome. **Leaves** broadly ovate-lanceolate, 2-3 crowded near the apex of the pseudobulb, 5.0 x 13.5 cm, ovate, rather thin. **Racemes** 10-12 cm long, 0.15-0.2 cm diam.; peduncle much longer than the rachis; each pseudobulb often flowers over several years in succession with 1-3 racemes. **Flowers** 2-7, spaced evenly, glabrous, 3.0-3.5 cm diam., with a straight, broad mentum which has a small apical broad hook; sepals and petals bright green with small black/purple markings on edges of ribs in petals and at the junction with the column and labellum; **labellum** a rich black/purple edged green, its lateral-lobes veined with green. **Dorsal sepal** 1.6 x 0.8 cm, lanceolate. **Lateral sepals** 1.5 x 0.8 cm, lanceolate, triangular, curved downwards. **Petals** 1.4 x 0.5 cm, lanceolate. **Labellum** three-lobed, 1.6 x 1.7 cm; lateral lobes 0.5 x 0.8 cm, broadly clavate, obtuse; mid-lobe transversely oblong-reniform, apiculate; calli extremely prominent, 0.3 x 0.1 cm, acuminate, ridged, 0.3 cm high.

HABITAT AND ECOLOGY: Epiphytic in coastal rainforests.

DISTRIBUTION: Papua New Guinea. Madang Province: Madang; Morobe Province: Finschhafen; Milne Bay Province: Milne Bay.

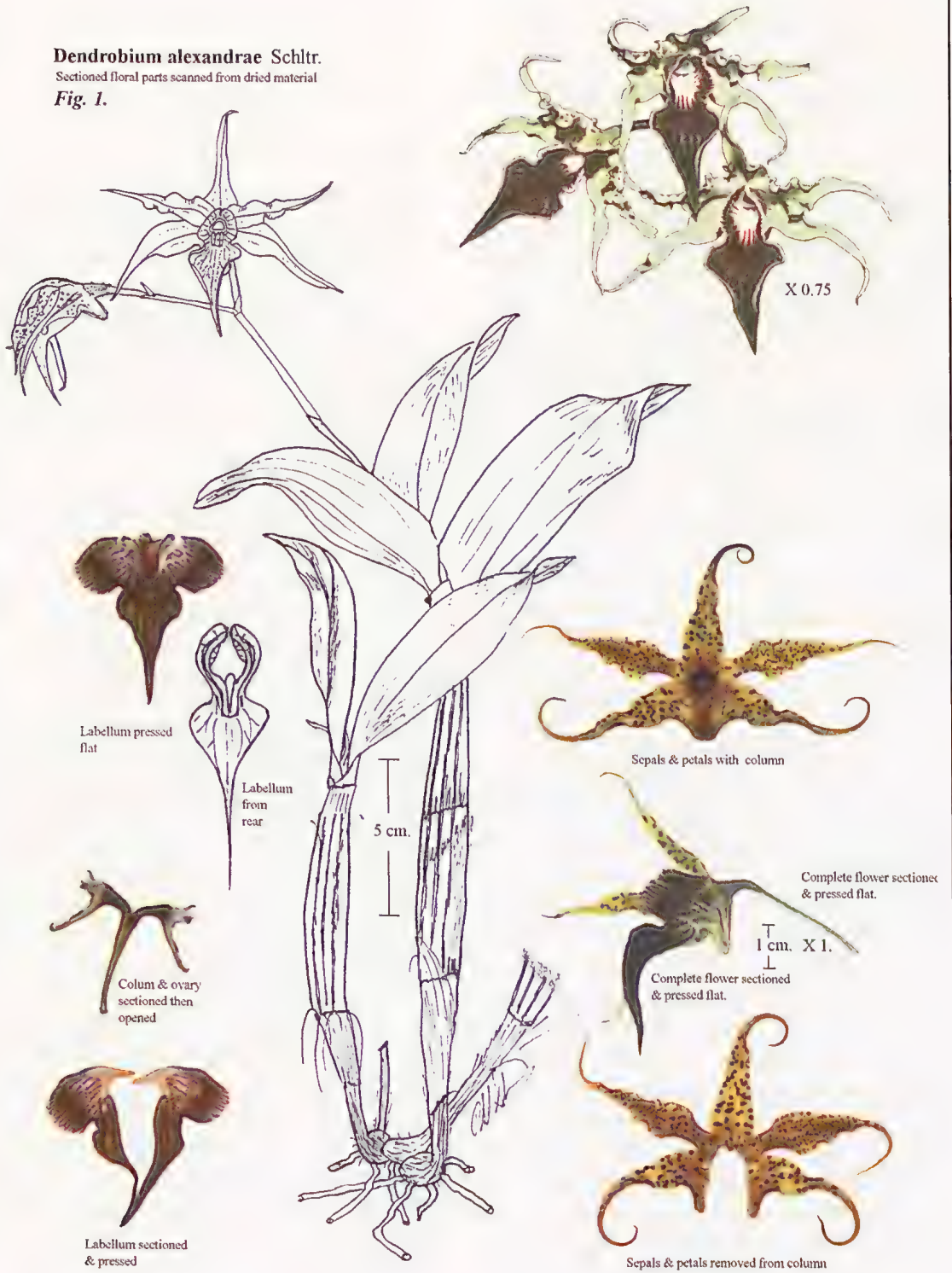
NOTES: Very little is known about the natural habitat of this species. It was described from a plant found in one of Sander's collections of *D. atrovioleaceum* from British New Guinea (Rolfe 1906, Reeve 1979a). Mrs. Andréé Millar brought this species to



Dendrobium alexandrae Schltr.

Sectioned floral parts scanned from dried material

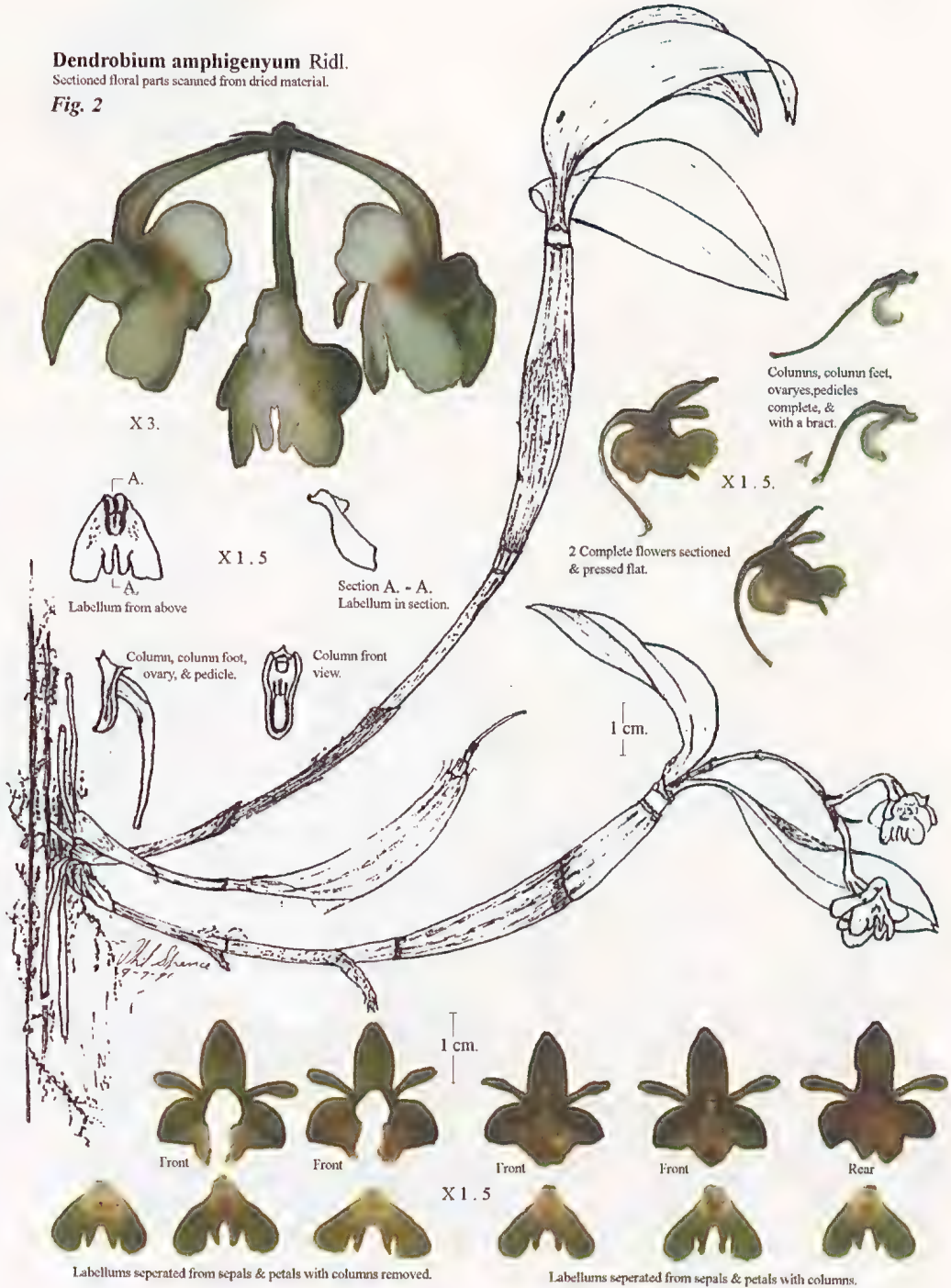
Fig. 1.



Dendrobium amphigenyum Ridl.

Sectioned floral parts scanned from dried material.

Fig. 2



my attention in Port Morseby in 1976 by a collection from Finschhafen of seven plants, two of which were pressed and deposited at Lae. I was fortunate to be able to raise this rediscovered species from seed. From these plants, seedlings are now available around the world. The rediscovery of this species and its subsequent reintroduction into cultivation by the author was reported more fully by Betts (1979). Recently more collections of this species have been made in the Finschhafen area.

The plant used to compile this description was collected near Finschhafen by A. Ninjio of Lae about 1973 (Millar 1973).

CULTIVATION: *Dendrobium convolutum* grows very easily in warm climates and in unheated glass houses, in pots of medium bark with polystyrene beads in the bottom of the pot. Plants are hung in the bushhouse under fibreglass for 9 months of the year and in the colder months transferred to a glasshouse after flowering in autumn. This species can tolerate occasional cool nights down to 6°C. The flowers last from four to six months.

Dendrobium convolutum has been used to make many beautiful hybrids. The first to flower was a cross with *D. atrovioleaceum*, a very closely related section *Latouria* species. This hybrid I named *D. 'Andrée Millar'*. Another very impressive hybrid is *D. convolutum* x *D. engae* which I named *D. 'Gerald Mc Craith'*. In nearly all the *D. convolutum* hybrids the green tepal colouration seems to be a dominant influence in the progeny and the labellum colour and shape is also enhanced, with much finer stripes than in the parent and generally flatter and more open.

4. *Dendrobium dendrocolloides* J. J. Smith, *Repert. Spec. Nov. Regni Veg.* 12: 110 (1913) & *Nova Guinea* 12(4): 320 (1916); *Sayeria dendrocolloides* (J. J. Smith) Rauschert, *Feddes Rep.* 94 (7-8): 466 (1983). Type: Dutch New-Guinea [Irian Jaya]: Arfak Mountains, alt. c. 2500 m, K. Gjellerup 1193 (holo BO). **See Fig. 4.**

Epiphytic herb. **Pseudobuds** clustered, clavate or subclavate, angled, with 2-6-nodes below the leaves, 5.5-34 x 0.4-0.95 cm, green-brown, or orange when old. **Leaves** 2-3, coriaceous, elliptic-lanceolate or lanceolate, acute, 5-9.8 x 3.8-2.6 cm, very shortly petiolate. **Inflorescence** terminal or subterminal, arcuate to suberect, 5-7.5 cm, long, up to 10-flowered; bracts elliptic, acute, 0.35-0.5 cm

long. **Flower** small, fleshy; sepals and petals white or greenish to red-greenish ± flushed with purple; **labellum** with green lateral-lobes and a purplish mid-lobe with a white base; **column** greenish white. **Dorsal sepal** oblong-elliptic, obtuse, 0.5-0.9 x 0.3-0.6 cm. **Lateral sepals** very obliquely oblong-elliptic, wider than long, obtuse, 0.5-0.7 x 0.6-0.8 cm; mentum subglobose, 0.5-0.7 cm, long. **Petals** falcately linear, rounded at apex, 0.45-0.8 x 0.15-0.2 cm. **Labellum** flabellate in outline from a narrow base, 0.45-0.85 x 0.55-0.9 cm, deeply emarginate with a small mucro in sinus, front margins erose; callus fleshy, obscurely 3-ridged. **Column** 0.25 cm long, with erose apical margins; foot 0.5-0.7 cm long.

DISTRIBUTION: Indonesia. Irian Jaya. Papua New Guinea. Morobe Province (Cribb 1983); Enga Province.

HABITAT: Epiphyte in montane forests or terrestrial on exposed earthen banks. Altitude 1130-1800 metres. Plants I observed in the wild were growing in clay embankments or in sphagnum moss tufts on exposed hill tops. The best plants were in thick alpine moss forests on the upper side of branches in the middle canopy.

NOTES: This species is often confused with *D. amphigenyum* which it closely resembles in habit and flower size, and they are often found growing in the same locality. The flowers of *D. dendrocolloides* usually self pollinate without opening and the labellum is 2-lobed with the mid-lobe reduced to a small sinus between the lobes.

CULTIVATION: This species thrives in an open bush house with a temperature range of 2°-35°C throughout the year and is potted in pine bark which has a light moss covering. Plants hang and are watered daily, early in the morning. Flowers last for two or more months. It is important to watch the new growths as they have a tendency to tunnel into the mix and eventually rot. Left unchecked this situation has the potential to kill the plant at the forward growth.

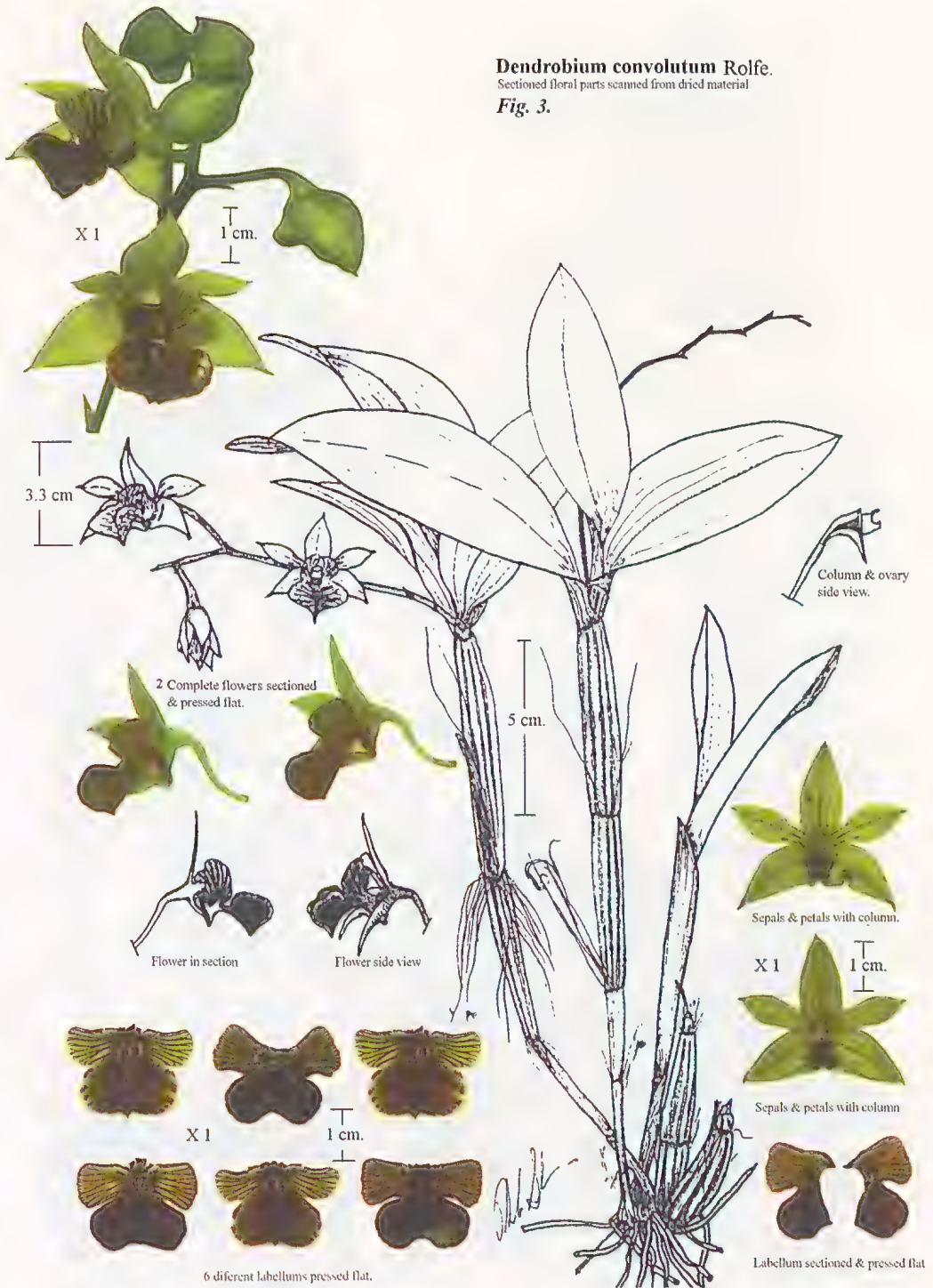
5. *Dendrobium engae* T. M. Reeve, *Orchadian* 6(6): 123-25, f (1979). Type: Papua New Guinea, Enga Province, Ipai, Laiagam., alt. c. 2200m, Oct. 1978, T. M. Reeve 238 (holo LAE; iso AMES, K). **See Fig. 5.**

Robust epiphytic herb to 60 cm tall. **Rhizome**

Dendrobium convolutum Rolfe.

Sectioned floral parts scanned from dried material

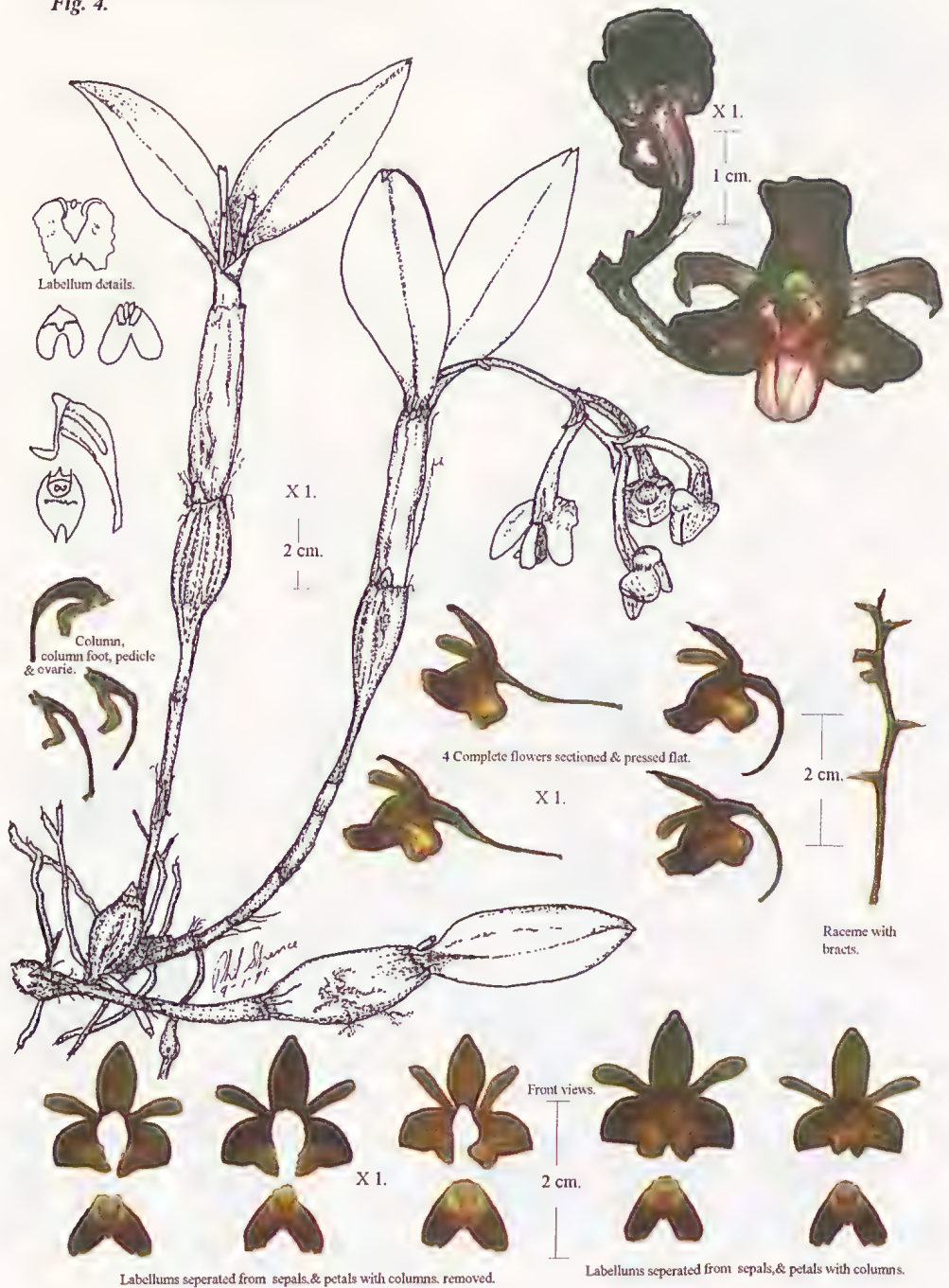
Fig. 3.



Dendrobium dendrocolloides J. J. Smith.

Sectioned floral parts scanned from pressed material.

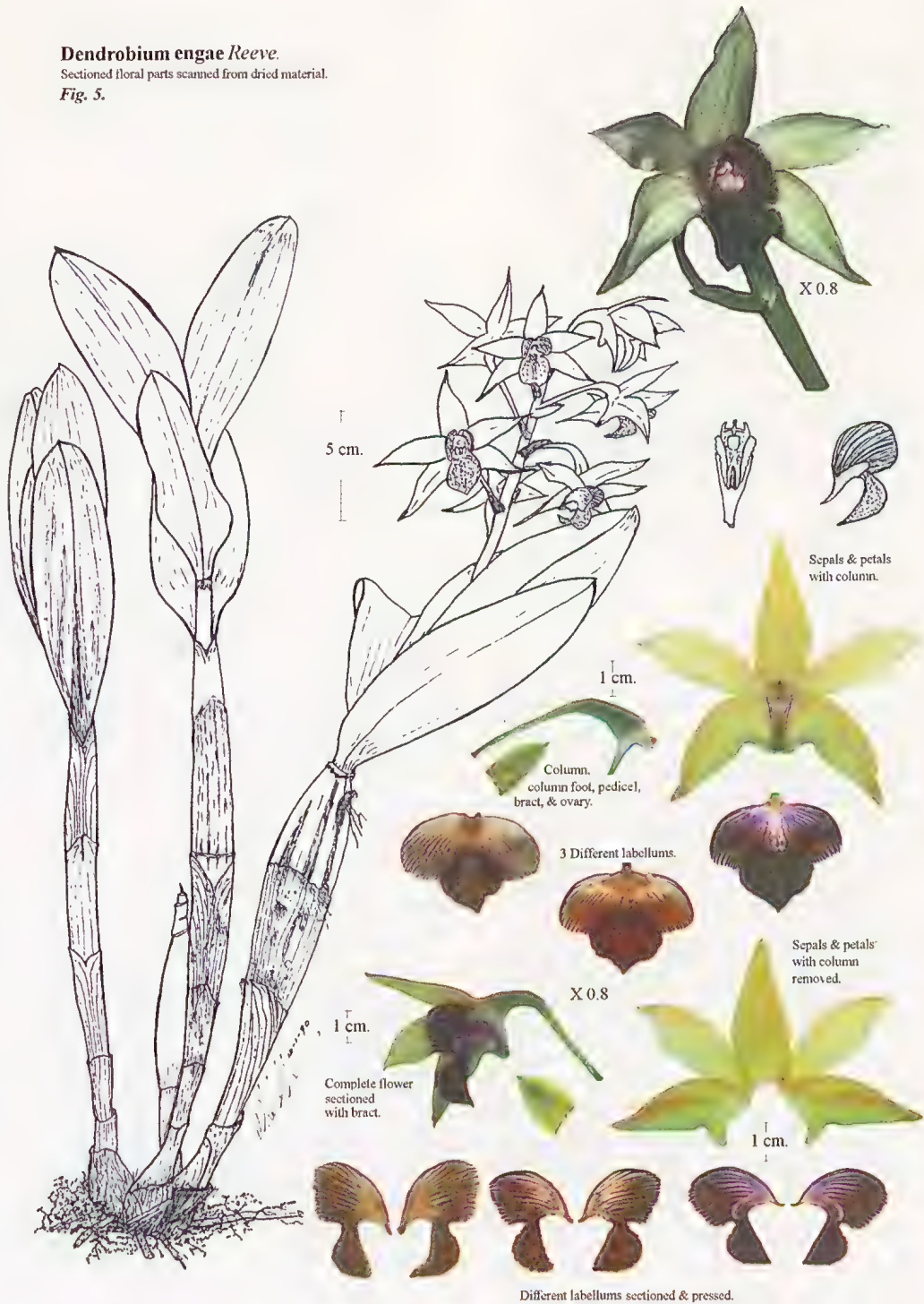
Fig. 4.



Dendrobium engae Reeve.

Sectioned floral parts scanned from dried material.

Fig. 5.



extremely short. **Roots** thick, flexuous, roughened, 0.2-0.4 cm diameter. **Pseudobulbs** thick, slightly swollen at the base, fusiform (small plants have ovoid pseudobulbs), becoming grooved with age, yellowish, with 10 nodes, 3-50 x 1.9-3.3 cm. **Leaves** 3-5, erect to semi-erect, oblong-ovate to oblong-elliptic, acute, sometimes emarginate, glabrous, leathery, pale to mid green, 5.5-21 x 2.5-6 cm. **Inflorescences** apparently terminal or subterminal, 3-15-flowered; peduncle 4-9 cm long; rachis 4-13 cm, long. **Bracts** ovate, acuminate, c. 1.5 cm long. **Flowers** large, fleshy, glabrous, widely-opening, c. 5-6 cm diameter, strongly and sweetly scented; sepals creamy-white, petals greenish-white, becoming creamy yellow with age. **Ovary** thick, fleshy, glabrous, 6-grooved; ovary with pedicel ca. 4.7 cm long. **Dorsal sepal** ovate-triangular, acute, 4.0-4.5 x 1.7 cm. **Lateral sepals** obliquely ovate-triangular, falcate, acuminate, strongly keeled, 3.8 x 4.1 x 1.6 cm, basally adnate with the column-foot for 1.0 cm. Petals obovate - spatulate, acute, 3.7-4.5 x 1.6-1.7 cm. **Labellum** stiff, with a prominent 3-keeled white median callus; flattened measurements 3.8-4.5 x 3.5-3.8 cm; lateral lobes erect surrounding the column, oblique-oblong, obtuse, pale yellow-brown with distinct interior purple striations and some small dots on the outside, 1.7-2.0 x 1.2-1.5 cm; mid-lobe projecting forward and downward, rotund to reniform, acute to apiculate, greenish-yellow with many scattered purple dots, becoming yellower with age, 1.8-2.0 cm in diameter. **Column** white with purple dots, c. 0.6 cm long; column-foot c. 1.0 cm long.

DISTRIBUTION: Papua New Guinea. Central Province: Myola, Owen Stanley Range; Mt Obree; Eastern Highlands Province; Enga Province: Wabag; Morobe Province: South of the Wau Bulolo Valley; Northern Province: Kuper Range; Western Highlands Province.

HABITAT: Epiphytic or lithophytic in montane forests and exposed ridges (1800-2700 metres). The main host seems to be *Nothofagus* sp., but I have also have found plants growing in clay and limestone shale road batters.

NOTES: Named after the Enga Province from where the type was collected (Reeve 1979b), *D. engae* grows as an erect epiphyte on the top side of the upper branches of trees and occasionally also on the main

trunk. The dark brown roots with their bright green tips furrow through the very thin scaly type bark barely hidden from sight. Small amounts of moss and algae grow over the poorer drained surfaces of the root systems and tree boughs.

Dendrobium engae was originally known as "Pike's Special" after Dr. Pike who was an observant amateur collector and medical officer in Wabag, in the Western Highlands during the 1960's (Slade 1962).

Dendrobium engae is among one of the more spectacular section *Latouria* dendrobiums and I find it hard to believe that early botanists such as Rudolf Schlechter missed this fabulous species. The substance, the texture, the perfume which these light yellow to green coloured flowers with their red-brown veined labellum, can only impress anyone who views this species. Flowers last from one to two months. This species holds its flowers upwards to slightly nodding on a strong erect spike.

CULTIVATION: I have found this species needs a lot of light and air movement. I use a raft made of fine tree fibre or a potting medium of twelve millimetre bark with sphagnum moss and perlite. The roots should be kept cool and moist, especially during the period when the plant is making new growths which is normally autumn through to spring. In the middle of winter my bush house drops to 1°-2°C. I have encountered no problems in cultivating *D. engae* with temperatures this low.

This species is very difficult to grow from seed. Many people have tried, (including myself) many times with little or no success and much frustration. However, I have found that if a seed capsule is set by self pollinating, good capsules develop with a large amounts of seed produced for sowing. While protocorms quickly develop, it is very difficult to take these protocorms any further regardless of what one tries. Most go brown and die. I was just about to give up when I decided to cross a plant from Myola with a plant from Wabag. The resulting seeds were very easy to grow in vitro and they continued to develop rapidly into seedlings.

I have produced many hybrids from *D. engae*, mainly using the Wabag plants as parents, because they come from a higher altitude (2700 metres) and so grow under much colder conditions. These

cooler growing clones have thus produced hybrids which are more resistant to lower temperatures. Some of these hybrids were with other *Latouria* species (*D. convolutum*, *D. tapiniense*, *D. rhodostictum*), others with the section *Spatulata* (*D. conanthum*, *D. helix*, *D. stratiotes*,) and a few with species from section *Phalaenanthe* (*D. phalaenopsis*, *D. lithocola*, *D. bigibbum*, *D. affine*). Further to this, a hybrid has been registered (Greatwood 1987) with the section *Nigro-hirsute* (*D. engae* x *D. infundibulum* = *D. Lady Murielle*). *Dendrobium engae* is very interesting for the hybridiser and from my observations should be used extensively in producing cool growing hybrids. Fortunately, there have been no difficulties raising seed with any hybrids I have made. Many of the hybrids produce a strong sweet perfume.

6. *Dendrobium geotropum* T.M. Reeve, *Orchadian* 7(8): 183-185 (1983). Type: Papua New Guinea, Western Highlands Province, Tambul District, Tomba, alt. 2700-2850 m, Feb. 1983, T.M. Reeve 1044 (holo LAE; iso AMES, CANB, E, K, L, NSW).

See Fig. 6. Plates 1A-D, 3A, B.

Medium to large epiphytic pendent herb to 60 cm long. **Roots** thick, flexuous, glabrous, white with greenish tips, to 0.4 cm diameter. **Rhizomes** extremely short. **Pseudobulbs** thick, clavate, with a slender basal section, somewhat moniliform, dilated apically, shallowly grooved with age, yellowish brown to dark brown, shiny, 8-noded, 5-27 x 0.8-3.0 cm. Leaves large in relation to the stems, 2-3 (small plants may have 1 leaf), pendent, occasionally spreading at the tips, ovate-elliptic to lanceolate, acute, glabrous, leathery, mid- to dark-green, sometimes suffused with purple, 6-24 x 1.8-5.5 cm. **Inflorescences** apparently terminal, pendulous, often partly enclosed by the leaves, 3-12-flowered; peduncle 3-18 cm long; rachis 2-14 cm long; bracts obovate (spatulate, concave, subacute, 0.6-0.8 x 0.5 cm). **Flowers** medium-sized for section, fleshy, glabrous, not usually widely opening, quite variable in size even on the same inflorescence, 1.5-2.5 cm diam., lasting several weeks at least, not perfumed., the tepals pale green with the outside of sepals sometimes spotted or suffused purple; labellum dark purple except for a large white callus and the underneath mid-line which is green near the apex and whitish near the base. **Ovary** green to purple, 6-grooved; ovary and

pedicel 1.0-1.8 cm long. Dorsal sepal oblong-ovate, obtuse, 1.4-1.9 x 0.8-0.95 cm. **Lateral sepals** obliquely triangular, acute, 1.5-1.9 x 1.0-1.2 cm at the base, forming a blunt mentum 0.6-0.8 cm long. **Petals** rhombic-elliptic, acute, 1.5-1.8 x 0.79 cm. **Labellum** ovate with small lateral lobes and the midlobe margins incurved (subcordate when expanded), 1.3-1.4 x 0.7-0.9 cm (up to 1.4 cm wide when expanded); callus prominent, of 3 parallel ridges, 0.7-0.75 x 0.3 cm. **Column** whitish with slight purplish colouration below stigma, 0.4-0.45 x 0.4 cm; column-foot green at base, 0.5-0.57 cm long; anther cucullate, greenish-white, 0.2-0.25 x 0.2-0.25 cm. **Capsules** commonly seen in nature, 5-6 x 2.5 cm; seeds orange-yellow.

DISTRIBUTION: Papua New Guinea. Enga Province: Mt Ambua; Western Highlands Province: Ming District; Southern Highlands Province: Mt Giluwe; Morobe Province: Wau.

HABITAT: Pendulous epiphyte on the trunks of tree ferns, *Nothofagus*, *Pandanus*, and *Papuacedrus* trees in moss forests at 2000-2850 metres. It possibly occurs at lower altitudes. Vernacular: Kalapu (Reeve 1983).

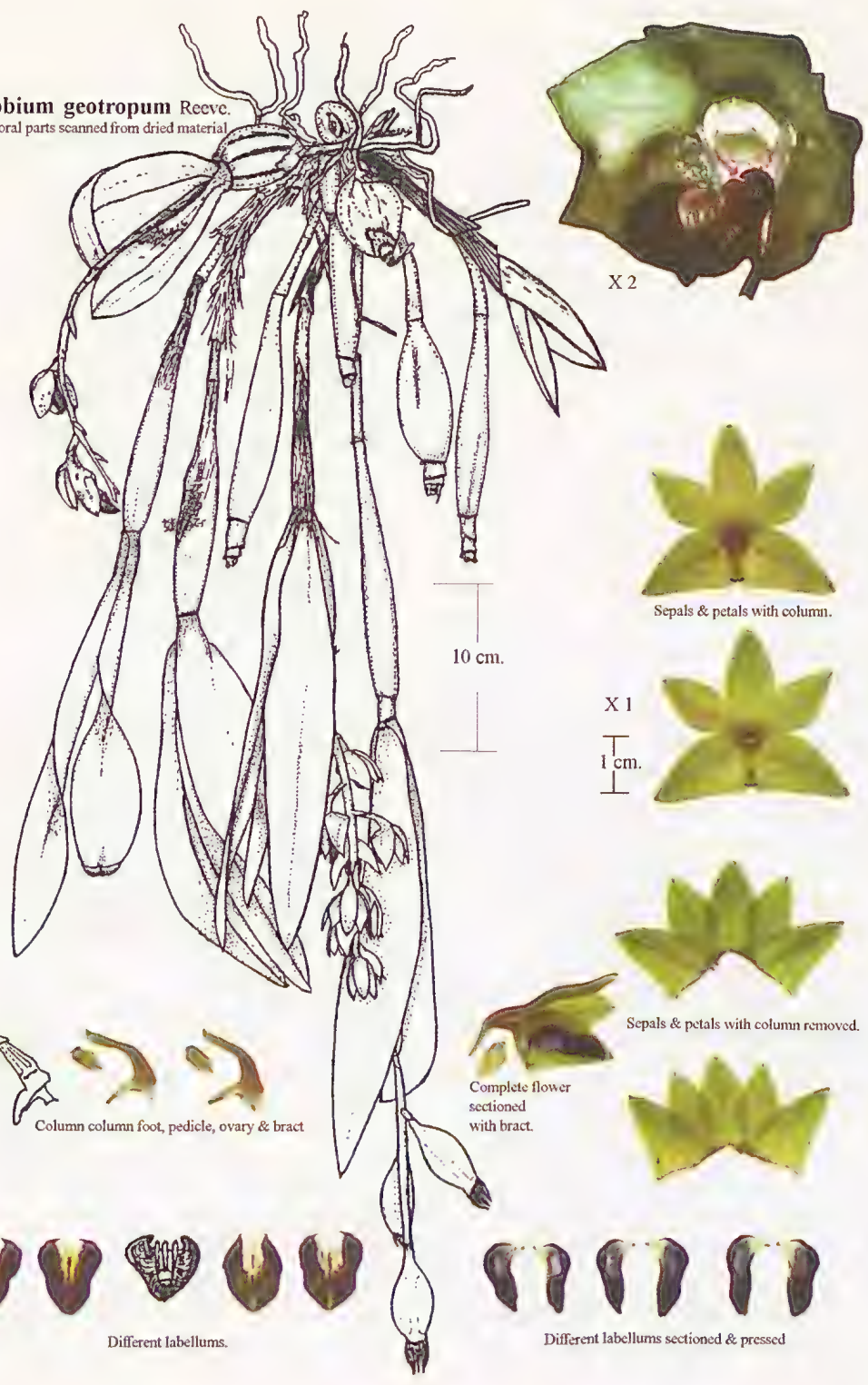
NOTES: A cryptic species which is difficult to see as the pseudobulbs hang close to a tree trunk or the underside of a branch and are buried in a carpet of loose moss. They are also of a similar colour to the constantly wet bark and the leaves are of a similar colour to the moss, but with a blue tinge. Mature plants hang barely clear of the moss and have a pendulous raceme which is almost engulfed by the 2-4 leaves which do not spread more than 30°, as if providing an umbrella to keep the flowers dry. The flowers are waxy with a stigma that overflows with copious amounts of fluid that does not come in contact with the pollinia. The pollinia is softly waxy, more so than any other species in the section *Latouria* and the anther cap is extremely easy to disturb. I was fortunate to observe the pollination of several flowers by medium sized flies. At the time of pollination there was no apparent scent but it was obvious that something was driving these flies into a frenzy, maybe it could have been the dark colour of the labellum which resembles dried meat with its well defined white calli almost maggot-like. The seed capsules are large for the size of the plant and the crowded leaves keep the dispersing seed dry without the capsule becoming clogged with



Dendrobium geotropum Reeve.

Sectioned floral parts scanned from dried material

Fig. 6.



X 2

10 cm.

X 1

1 cm.

Sepals & petals with column.

Sepals & petals with column removed.

Complete flower sectioned with bract.

Column column foot, pedicle, ovary & bract

Different labellums.

Different labellums sectioned & pressed



1A. *Dendrobium geotropum* on host tree. Some moss removed to expose plant.

Photo by Justin Tkatchenko



1B. *Dendrobium geotropum* on host tree, close up. Photo by Justin Tkatchenko



1C. Typical forest where *Dendrobium geotropum* is found.



1D. *Dendrobium geotropum* on tree fern, exposed after fire.



moisture or fungus in this constantly moist environment.

CULTIVATION: Rare in cultivation and to date no information is at hand. I have raised this species from seed and the seedlings are still in the flasks.

7. *Dendrobium spectabile* (Blume) Miq., *Fl. Ind. Bat.* 3: 645 (1855).

Basionym: *Latouria spectabile* Blume, *Rumphia* 4: 41, t.195, f.1 & t.199C (1850); *Latourorchis spectabile* (Blume) Brieger in Schltr., *Die Orchideen* (ed. 3) 1(11/12): 727 (1981); *Sayeria spectabilis* (Blume) Rauschert, *Feddes Rep.* 94(7-8): 468 (1983). Type: "In Nova New Guinea in arboribus", *Latour-Leschenault s.n.* (holo L).

Dendrobium tigrinum Rolfe ex Hemsley, *Ann. Bot.* 5: 507 (1891). Type: San Cristobal, R.B. Comins 187 (holo K). See **Fig. 7. Plates 2B, 3D.**

Epiphytic herb. **Pseudobulbs** clustered, cane-like, to c. 40 x 1-1.3 cm, 5-8 nodes below leaves, swollen at base. **Leaves** 4-6, suberect, coriaceous, elliptic, obtuse, to 23 x 4-8 cm, shortly petiolate. **Inflorescences** emerging from just below leaf-bases, erect, 20-40 cm long, few-many-flowered; peduncle terete, bearing 4-6 small sheaths; bracts elliptic-lanceolate, acute, 1-1.3 x 0.4 cm long. **Flowers** large, somewhat grotesque, yellow, commonly heavily mottled with maroon on sepals and petals, lined with maroon on tip and with a white callus; pedicel and ovary 4-6 cm long. **Dorsal sepal** recurved, lanceolate, acuminate, 3-6 x 0.5 cm, with somewhat undulate margins. **Lateral sepals** recurved, lanceolate - falcate, acuminate, 3-6 x 1.3 cm, with somewhat undulate margins; mentum obliquely conical, 1.0 cm long. **Petals** linear - lanceolate, acuminate, somewhat twisted, 4 x 0.6 cm, with undulate margins. **Labellum** 3-lobed, recurved, 4 x 2.2 cm; lateral-lobes erect, subquadrate-semicircular, rounded in front; mid-lobe much longer than lateral-lobes, lanceolate, acuminate, undulate - twisted; callus 3-ridged, raised at base and apex. **Column** short, 3 mm long; foot 8.5 mm long.

DISTRIBUTION: Indonesia. Irian Jaya (Smith 1909). New Caledonia (one plant recently collected from the north west end of the island). Papua New Guinea, Bougainville and the Solomon Islands. (Cribb 1983). I have observed this species in Papua

New Guinea at the following locations: Sogeri Plateau, Brown River and Vanapa River in the Central Province; Lae, Mount Gibensis, Markham Valley, Morobe Province; Torricelli Mountains, West Sepik Province.

HABITAT: Epiphyte in lowland swampy forest and lower montane forest on *Casuarina* or on coconut palms (*Cocos nucifera*), rubber trees (*Hevea brasiliensis*), and on rain trees (*Samanea saman*) in Lae. It ranges from sea level to 1100 metres.

NOTES: *Dendrobium spectabile*, one of the most widely distributed species in the section, was first brought into cultivation around 1898 (Schlechter 1911-14). As its epithet suggests, it is probably the most spectacular species in the section when in flower. It has been extremely described as baby serpents fighting over meat at feeding time or a gynaecologists nightmare.

Dendrobium spectabile is allied to *D. alexandrae* but is recognised by its very undulate floral segments and the longer lanceolate labellum mid-lobe which is striped with purple rather than being spotted.

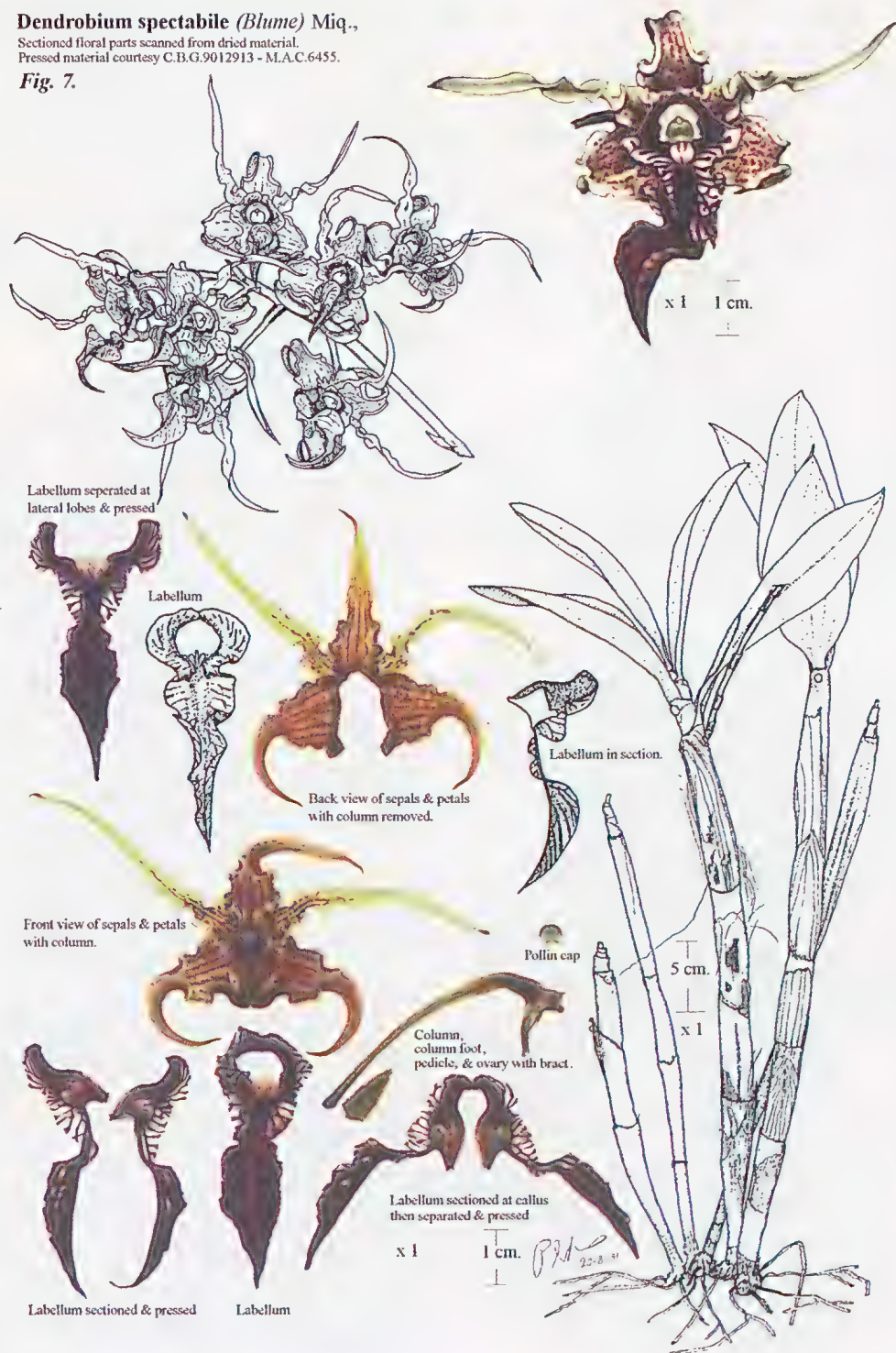
Habitats in which I have observed this species are extremely variable. At the Sogeri Plateau in Papua New Guinea, at an altitude of approximately 400 metres, this species grows high on the trunks of rubber trees. In the Markham Valley PNG, at an altitude of between 50 to 100 metres, it grows fully exposed high in tree tops in hot steamy coastal swamp forest. This was very different to the upper creeks of the Brown River PNG, at an altitude of 1000 to 1200 metres. Here, in one blind gully large specimens grew on the trunks of very old trees fully exposed to strong light. This is the only time that I have seen this species in large colonies. Some trees had up to 30 or more plants growing on them. These trees were well anchored along the exposed ridges of a small plateau on top of a high cliff face where the plants, at night and in the morning, were bathed in mist from the valleys below. At daybreak the first sunlight streaks across the horizon thus warming these plants and drying out the moisture that has accumulated on them over night. The host trees on which I have observed this species are *Anisoptera* sp. and rain trees.

CULTIVATION: *Dendrobium spectabile* thrives in a heated glasshouse or outside in full sun in the tropics with

Dendrobium spectabile (Blume) Miq.,

Sectioned floral parts scanned from dried material.
Pressed material courtesy C.B.G.9012913 - M.A.C.6455.

Fig. 7.





2A. *D. convolutum* growing at National Capital Botanical Gardens, Port Moresby.



2B. *Dendrobium spectabile* (Blume) Mig. Plant grown by P. Spence.

Photo by D. Titmuss



3A. *Denrobium geotropum* freshly opened flower. Photo by Phil Spence



3B. *Denrobium uncipes* J.J. Smith. Plant grown by P. Spence.

Photo by D. Titmuss



3C. *Denrobium alexandrae*. Plant grown by P. Spence. Photo by D. Titmuss

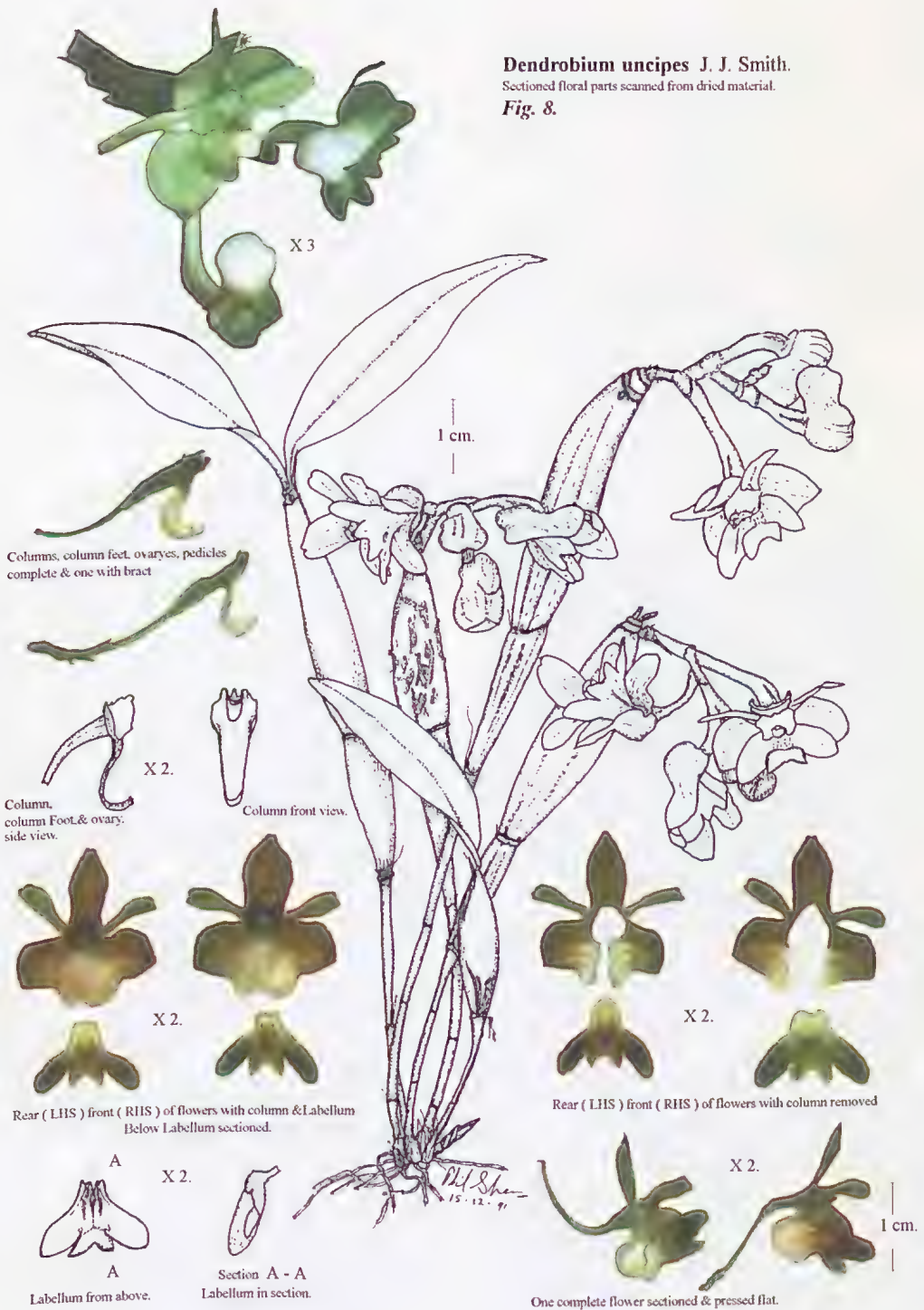


3D. *Denrobium alexandrae* Schltr. (top).
Denrobium spectabile (Blume) Mig. (bottom).
 Plants grown by P. Spence.

Photo by D. Titmuss



Dendrobium uncipes J. J. Smith.
Sectioned floral parts scanned from dried material.
Fig. 8.



no shading necessary. Plants will also grow very easily in intermediate conditions or even semi-cool to about 10°C with the odd night to 5°C. The chill of the oncoming winter nights initiates flowering. My plants flower in mid to late autumn. Racemes are rarely produced from the new pseudobulbs. The older pseudobulbs flower for many years until the pseudobulb starts withering away, some in excess of 12 years. The inflorescences usually arise from under the leaves, rarely from the stem apex. Each inflorescence carries as few as seven or as many as twenty-two flowers.

Mature plants are best when they have been established for a long period in a well drained shallow pot, about 25 cm deep. The potting material is a hard pine bark with polystyrene beads, keeping the plant dry for a few days to allow any damage that might have occurred to dry and seal. After potting I then start a heavy watering and feeding program till the plant is established and then taper off the watering to keep the bark or potting mix barely moist.

This species is widely grown and for this reason it has been the subject of many crosses, both within section *Latouria* and other various species in other sections of *Dendrobium*. Unfortunately, this interesting species has only produced a small number of successful hybrids, the majority being disastrous.

8. *Dendrobium uncipes* J. J. Smith, Bull. Jard. Bot. Buitenzorg (ser. 2) 3: 72 (1912); *Katherinea uncipes* (J. J. Smith) Hawkes, *Lloydia* 19: 98 (1956); *Sayeria uncipes* (J. J. Smith) Rauschert, *Feddes Rep.* 94 (7-8): 468 (1983). Type: Dutch New Guinea [Irian Jaya]; Cycloops [Cyclops] Mountains, alt. c. 900 m, June 1911, K Gjellerup 568 (holo BO). See Fig. 8. Plate 3B.

Epiphytic herb. **Pseudobulbs** ovoid, c. 8-angled, 12.5 x 1 cm, brownish-yellow. **Leaves** 2, fleshy-coriaceous, ovoid, narrowed and unequally bidentate at apex, about 7 x 2.5 cm, dark green. **Inflorescence** erect, 3.2 cm long, c. 3-6 flowered; peduncle 2.6 cm long, x 0.2 cm diam., somewhat verrucose; bracts triangular, acute, concave, 0.37 cm long. **Flowers** small, fleshy, yellow-green and white. **Dorsal sepal** oblong-ovate, bidentate, 0.85 x 0.5 cm, minutely furfuraceous-punctate on outer surface. **Lateral sepals** obliquely oblong-elliptic, obtuse, 0.83 x 0.78 cm; mentum subsaccate,

compressed, 0.53 cm long. **Petals** uncurved, falcate, oblong-oblongate, obtuse, minutely erose, 0.83 x 0.25 cm. **Labellum** 0.68 x 1.3-1.0 cm; lateral-lobes spreading, narrowly elliptic, subacute; mid-lobe bifid with a blunt mucro in the sinus, each lobule resembling a smaller lateral-lobe; callus fleshy, 0.37 cm, 3-ridged, about half the length of the labellum. **Column** 0.35 cm long; foot incurved, 0.5 cm long.

DISTRIBUTION: Indonesia. Irian Jaya: Djajapura area, Cycloop Range (Smith 1912).

Papua New Guinea: Sundaun Province; Torricelli Mountains (Reeve, pers. comm.).

HABITAT AND ECOLOGY: Epiphytic in primary forest at c. 900 metres.

CULTIVATION: The plant described in this note was one of the few plants collected by Reeve and cultivated at Laiagam in the Enga Province, Papua New Guinea, and is now in cultivation in Sydney Australia. This plant thrives in an open bush house, with a temperature range of 2°-35°C throughout the year. It is potted in pine bark which has a light moss covering and is hanging rather than sitting on a bench. It is watered daily early in the morning.

NOTES: Reeve's drawing shows this species with a pendulous habit but in cultivation it grows erect. The raceme takes several months to develop. As the buds grow they take the shape of the figure eight when viewed from the side. The lettuce-green flowers open to reveal a green-white labellum with a white bifid mid-lobe which slowly turns green-yellow just before the flowers collapse. They last two to three months.

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